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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/671,343	09/25/2003	Shawn Joseph Baranczyk	ROC920030213US1	7069

30206 7590 03/22/2007  
IBM CORPORATION  
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EXAMINER

HO, THOMAS M

ART UNIT PAPER NUMBER

2132

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/22/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/671,343

Applicant(s)

BARANCZYK ET AL.

Examiner

Thomas M. Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 9/25/03.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

1. Claims 1-30 are pending.

***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 29 and 30 are rejected as being directed to non-statutory subject matter. Claim 29 and dependent claim 30 recite a program product that is borne as a computer readable signal bearing medium.

Broadly construed, a signal bearing medium is merely a digital or electronic signal and is intangible. In order for the program product to be statutory under 35 USC 101, the claim as a whole must be concrete, useful, and tangible.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 6-9, 14-16, 19-22, 27-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Chan, US patent 5713018.

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In reference to claim 1:

Chan discloses a method of executing a query in a database management system, the method comprising:

- Receiving an SQL statement from an application program coupled to the database management system, where the SQL statements are received from a client through the clients' DBMS access program. (Column 2, lines 48-67)
- Executing the SQL program. (Column 1, lines 65-67)
- Encrypting the SQL statement to generate an encrypted representation of the SQL statement, where the SQL is encrypted into an encrypted SQL string. (Column 3, lines 11-51)
- Logging execution of the SQL statement in a database monitor by storing the encrypted representation of the SQL statement in an execution log managed by the database monitor; whereby access to an unencrypted representation of the SQL statement via the database monitor requires decryption of the encrypted representation of the SQL statement stored in the execution log, where the SQL is logged in a table, and access to the statement requires decryption of the statement for the statement to be properly executed. (Column 3, lines 50-60) & (Column 4, lines 35-60)

In reference to claim 2

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Chan (Column 3, lines 12-37) discloses the method of claim 1, further comprising encrypting at least one value passed to one of host variable and a parameter marker used by the SQL statement, wherein logging execution of the SQL statement further comprises storing the encrypted value in the execution log, where the SQL statement is the value passed to the host variable, the encrypted SQL string also known as the constant string (Column 3, lines 50-55) and the parameter markers which are used for the arguments.

In reference to claim 3:

Chan discloses a method of logging query execution in a database management system, the method comprising,

- Generating an encrypted representation of an execution detail for a query executed by the database management system (Column 3, lines 10-37)
- Logging the execution detail for the query in an execution log for the database management system by storing the encrypted representation thereof in the execution log, where the execution detail is logged in a table and stored therein in its encrypted representation. (Column 3, lines 50-60) & (Column 4, lines 50-60)

In reference to claim 6:

Chan discloses the method of claim 3, wherein generating the encrypted representation is performed prior to communicating the query to the database management system. (Column 4, lines 40-50)

In reference to claim 7:

Chan (Column 3, lines 12-60) discloses the method of claim 3, wherein the execution detail comprises a query statement, where the query statement is the SQL or “structured query” statement.

In reference to claim 8:

Chan (Column 3, lines 12-60) discloses the method of claim 3, wherein the execution detail comprises a value passed to a host variable during execution of the query, where the host variable is the encrypted SQL string, and the value passed to the variable is the value of the function Encrypt().

In reference to claim 9:

Chan (Column 3, lines 12-60) discloses the method of claim 3, wherein the execution detail comprises a value passed to a host variable during execution of the query where the host variable is the encrypted SQL string, and the value passed to the variable is the value of the function Encrypt().

In reference to claim 14:

Chan (Column 2, line 60- Column 3, line 60) discloses the method of claim 3, further comprising determining if database monitoring is enabled in the database management system, wherein generating the encrypted representation is performed if it is determined that database monitoring

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is enabled where the database monitoring comprises receiving incoming SQL statements, and where the encrypted representation is generated if the system of Chan is used.

In reference to claim 15:

Chan (Column 3, lines 12-60) discloses the method of claim 3, wherein the query comprises an SQL statement.

In reference to claim 16:

Chan (Column 2, line 60- Column 3, line 60) discloses an method apparatus, comprising:

- At least one processor; (Column 2,lines 40-45)
- A memory within which is stored an execution log; (Column 2,lines 40-60) & (Column 3, lines 50-60)
- Program code configured to be executed by the at least one processor to log query execution in a database management system by generating an encrypted representation of an execution detail for a query executed by the database management system (Column 3, lines 10-25), and logging the execution detail for the query in the execution log by storing the encrypted representation thereof in the execution log. (Column 3, lines 50-60)

Claim 19 is rejected for the same reasons as claim 6.

In reference to claim 20:

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Chan (Column 3, lines 50-60) discloses the apparatus of claim 16, wherein the execution detail comprises a query statement.

In reference to claim 21:

Chan (Column 10, lines 10-37) disclose the apparatus of claim 16, wherein the execution detail comprises a value passed to a host variable during execution of the query, where the host variable is the embedded constant string, and where the value passed to it is the value of the function of Encrypt(SQL statement with placeholders)

In reference to claim 22:

Chan (Column 3, lines 1-60) & (Column 4, lines 10-35) discloses the apparatus of claim 16, wherein the execution detail comprises a value passed to a parameter market during execution of the query, where the value passed to the parameter markers are the arguments.

Claim 27 is rejected for the same reasons as claim 14.

In reference to claim 28:

Chan (Column 3, lines 50-60) discloses the apparatus of claim 16, wherein the query comprises an SQL statement.

Claim 29 is rejected for the same reasons as claim 16.

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In reference to claim 30:

Chan (Column 2, lines 25-60) discloses the program product of claim 29, wherein the computer readable signal bearing medium includes at least one of a transmission medium and a recordable medium, where the recordable medium is memory.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4,5 10-13, 17, 18, 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan.

In reference to claim 4:

Chan fails to explicitly disclose the method of claim 3, further comprising receiving the query in an unencrypted form from an application program in communication with the database management system.

However, the Examiner takes official notice that receiving an SQL query in unencrypted form was well known at the time of the invention. In fact it was the state of the prior art. Chan

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attempts to provide some measure of security in executing SQL statements by a DBMS. The prior art comprises transmitting and receiving these commands in unencrypted form.

It would have been obvious to one of ordinary skill in the art at the time of invention to receive the query in unencrypted form in order to provide the advantage of speeding up processing and execution times without the added overhead of implemented security.

In reference to claim 5:

Chan fails to explicitly disclose the method of claim 4, wherein generating the encrypted representation is performed after communicating the query to the database management system.

Chan instead discloses that the SQL statements are sent and that the encrypted versions of these statements are generated. Chan does not explicitly disclose the order of these events.

The Examiner takes official notice that generating the encrypted representation after communication the query to the DBMS was well known at the time of invention.

Often time, a query is announced to a DBMS as a preparatory handshake signal to determine if the server is active and waiting. Once the handshake is complete, the encryption may further proceed. It is advantageous to do this because it conserves on the computational resources necessary to perform the encryption if the encryption is not necessary.

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It would have been obvious to one of ordinary skill in the art at the time of invention to generate the encrypted representation after communicating the query in order to first determine which version of the DB access program the client is using. (Column 2, lines 60-67)

In reference to claim 10:

Chan fails to explicitly disclose the method of claim 3, further comprising logging a second execution detail for the query in the execution log in an unencrypted representation.

Chan rather discloses logging the statements in encrypted form in a table. (Column 3, lines 50-60) & (Figure 3)

It would have been obvious to one of ordinary skill in the art to log an unencrypted representation of the string in order to conserve the resources necessary to compute the encryption.

In reference to claim 11:

Chan discloses the method of claim 10, wherein the second execution detail includes at least one of an access plan and a performance statistic associated with execution of the query, where the access plan is the 2<sup>nd</sup> modified access program used by trusted clients. (Column 2, lines 60-67) & (Column 3, line 60 – Column 4, line 5)

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In reference to claim 12:

Chan (Column 4, lines 15-25) discloses the method of claim 3 further comprising decrypting the execution detail in association with displaying the execution log.

Chan fails to explicitly disclose displaying the execution log.

The examiner takes official notice that displaying computer data was well known to those of ordinary skill in the art at the time of invention. For example, such logs are often generated as reports to serve administrators who seek to maintain the system.

It would have been obvious to one of ordinary skill in the art to display the execution log in order to provide a Database administrator with the output necessary to maintain the system.

Claim 13 is rejected for the same reasons as claim 26.

Claim 17 is rejected for the same reasons as claim 4.

Claim 18 is rejected for the same reasons as claim 5.

Claim 23 is rejected for the same reasons as claim 10.

Claim 24 is rejected for the same reasons as claim 11.

Claim 25 is rejected for the same reasons as claim 12.

In reference to claim 26:

Chan (Column 3, lines 35-50) fails to explicitly disclose the apparatus of claim 25, wherein the

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program code is configured to generate the encrypted representation by encrypting the execution detail using a public key, and wherein the program code is configured to decrypt the execution detail by decrypting the execution detail using a private key paired with the public key.

Chan instead discloses encryption with the private key and decryption with the public key.

The examiner takes official notice that public key cryptography was well known to those of ordinary skill in the art at the time of invention. Public key cryptography encrypts with the public key and decrypts with the private key. The method Chan is advocating is a digital signature algorithm which encrypts with a private key and decrypts with the public key.

It would have been obvious to one of ordinary skill in the art at the time of invention to encrypt the SQL code with the public key and decrypt with the private key in order to establish the secrecy such that only the person with the private key would be able to read and decipher the query.

### *Conclusion*

8. The following art not relied upon is made of record:

- US patent 6792425 is a secure database system
- US patent 5987422 is a database method of executing and logging a procedure
- US patent 5950188 is a method of executing database commands and logs the

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commands in a command buffer.

9. Any inquiry concerning this communication from the examiner should be directed to Thomas M Ho whose telephone number is (571)272-3835. The examiner can normally be reached on M-F from 9:30 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on (571)272-3799.

The Examiner may also be reached through email through [Thomas.Ho6@uspto.gov](mailto:Thomas.Ho6@uspto.gov)


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-2100.

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TMH

March 18<sup>th</sup>, 2007

  
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